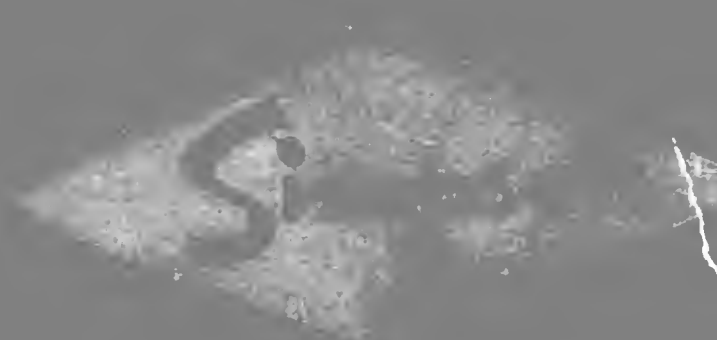


C-1 THRU C-249
INDIA TRIP 1961.

Magical!



THE GREAT ESCAPE

THE GREAT ESCAPE

No. 699?

1961 Motor Map of Ceylon
Survey Department

Sinthun Forest Rangers College and Forest
Research Centre,

Coimbatore 2

Dr J. C. Basu Choudhuri

Rangoon

Dr Chandra C. Pant

WAO

12 Newlain

Rd Menton Harris

~~LUDHIANA~~, PUNJAB

LUDHIANA

Dr Sandai Singh

Agric College

~~Shimla~~ SIMLA

CULTURE NOTES

CULTURE 1 *Oligotoma saundersii*? in small patch colonies on bark of small trees along waterfront. Singapore. Released female on bark immediately seized by group of *Oecophylla* and dismembered. Oedembia

E. PAKISTAN

CULTURE 2 Chittagong docks. Single tree between warehouses, soft, punky bark. *Saundersii*? One male carried in jaws of ant. O. grisea

28 mi E. Chittagong IX-14-61

CULTURE 3 Sahamati Forest. Remnant of old rain forest now badly disturbed, 75 ft d, rainy season. Several species of embiids on soft bark of saplings and dead limbs. 1 pupa of multicolor. Oedembia

CULTURE 4 Same but mostly multicolorous sp. preferring dead loose bark on cut off saplings of soft flakey type. Webs thin, filmy, speckled with frass. Also in midst of braided vine on large trunk. About 25 in pure culture. Oedembia

CULTURE 5 Harbang Forest 30 mi. S. Chittagong. Spotty natural forest about 75' d on low hills. Embiids scarce in undisturbed forest. This culture in coarse hard bark crevices near rest house. possibly several spp. Apothonia ceylonica?

CULTURE 6 Same. On large tree with big glossy dark green leaves. Small sp. (Teratembid-like) in superficial bark flakes, numerous. ♀ pale tan. Apothonia minuta

CULTURE 7 Same. Crevices in rest house and at over top of split bamboo fence, several species including multicolor. Oedembia

CULTURE 8 Same. Same niche as #6 with 1♀ multicolor and more tiny species. This colony radiated in ^{horizontal} crevice. Many empty in star. Apothonia minuta

CULTURE 9 6 MI. S. DOHAZARI 12' EL 19-IX-61

East Pakistan Large fig. tree in midst of rice paddy country. Scattered embiid colonies in coarse bark crevices and along exposed ground roots.

2 species. (1) a large multicolor ♀ with 3 adult males. Embiididae. Prob. new genus. Some early instar. Larger superficial tunnels somewhat obscured with frass and debris, lead to crevice retreats.

2. Smaller species with appearance and habits of southernii.

Oedemia



CULTURE 10 Bariyadhala, 27 miles N. Chittagong
Forest station area in rice paddy land at base of
low, forested hills. Small colonies in bark of trees
bordering pond. Small tan species genus? Apothonia
n. sp.

BARAIYADHALA

CULTURE 11 Same limit high in forested hill
tract about 150' el. Mixed tropical forest with
embroids on flakey bark, esp. on sheltered underslopes
of trees. 2 species (1) a small tan sp. prob same
as above. (2) Multicolored embroid, 1 ♀ and 1 juv.
seems smaller than culture 9. Oedenia
Teratembroid

CULTURE 12 Roadside tree near Feni, E. Pakistan
.17 ft el. O. greeniana

CULTURE 13 STOP 8 LAWACHERA FOREST, SRIMANGAL, E. PAK.
IX-27-61

30 year old teak plantation with dense secondary
vegetation on low hills 75 meters elev. Scattered
patches of original forest in cyano and isolated
trees. Large sheet colonies produced by progeny
of individual black females (Apothonia?)
webs white, devoid of frass. Eggs laid on
bark surface in dense, single layer packets
fused with matrix of dark material about
200 eggs per cluster. Young now in 2nd or 3rd
instar; radiate gregariously like scolytid burrows
Occasionally found on dead bamboo

EOSEMBIA N.SP.

CULTURE 14 + 14a Same forest

Multicolor females and 3rd instar young in obscure isolated colonies in soft bark. Webs covered with frass, difficult to see. Prefer old dead outer bark flakes or bark of dead limbs and vines. Webs very flimsy, sheet-like (not defined in definite tunnels)

Oedemia

CULTURE 15 + 15A East Pakistan: CHICKNAGUL, 10 MI. N.

SYLHET IX-29-61 Lowland remnants of wet forest

Embriods often in deep, damp moss of shaded tree trunks. Also in braided vines on large fig tree. Colonies often sheet-like on surface and densely speckled with frass. Tunnels ramify into soft bark flakes. Larvae at ^{Sylhet} Oil geologists Apothonia n. sp. (Eosemia?)

CULTURE 16 India: 3 MI. N. DAWKI 150 M ASSAM

Lower slopes of mtn. forest. coarse-flaked bark of roadside tree. Apparently same sp. as 15 Apothonia n. sp.

+17A

CULTURE 17 India. 7 MI. S. PYNURSLA 1000 M

Cool zone, rich scrub flora badly cut and burned by Khasi villagers. Embiid colonies rare in low, dense forest on mossy bark. Individual embriods under small bark flakes. Silk frass speckled

Apothonia n. sp.

CULTURE 18 ASSAM: PYNURSLA 1350 M X-1-61

Rough mtn. terrain. Low forest in cyme, edges badly chopped. Pine on ridges. Embriods in dry bark surfaces sheltered from excessive moisture. Individual embriods in small frass-speckled colonies. m 3-4 perult ♂ 2-3 females

Eosemia

CULTURE 19 ASSAM: 10 MI. S. SHILLONG 1650 M

X-1-61 Pine zone + agriculture. Large, extensive embiid colonies in rough bark of cherry + other decid. trees. Numerous half grown embriods cultured in large jar.

Oedemia

CULTURE 20 SHILLONG, ASSAM (KENCH'S TRACE
ZOOLOG. SURVEY OF INDIA STATION) X-2-61 large colonies
following vertical crevices of Pines and Cryptomeria
bark Oedemia

CULTURE 21 ASSAM: CHERRAPUNJI 1350 M 2 SP?
in deep moss on samplings in cloud forest also on
hanging moss clump. Rare. 1 smaller black female, mature
Several in mixture of larger sp. with pale coxae and
antennal tips. Apothonia sp. died virgin

CULTURE 22 ASSAM: 4 MI. N. SHILLONG 1000 M
Mixed pine and broad-leaf mtn. forest. 1 ♀
multicolor in flaky bark of large tree. 1 juv.
oligotomid in dead twig Eosemia

CULTURE 23 + 23A ASSAM: 13 MI. N. SHILLONG 900 M
Cleared, burned hills, Embiids in splintered saplings
and dead twigs in cyn. thickets of small trees.
All multicolor Oedemia

24 CULTURE 24 + 24A + 24B ASSAM: AMSOI FOREST 50 M
28 MI. S.W. NOWGONG X-6-61 Dense, old plantation
of teak etc., flat, rather dry, much undergrowth.
Culture 24 on loose bark of 1" dead ^{dry} limb hanging
in vine. Embiids retreat into punky interior
Culture 24A on bark surface webs white, clear of
fross. Similar to culture '13 (3rd instar)
Culture 24B in twig

C-24 Apothonia m. sp. Oedemia, Eosemia

25 CULTURE 25 ASSAM: 13 MI. N.E. NOWGONG 90 M
Lowland bamboo thicket along river with scattered
sift bark trees smallish black Oligotoma in
fross-specked colonies
Oligotoma quensana

CULTURE 26 ASSAM: GOTANGA, KAZIRANGA
X-5-61
100 M Virgin forest in valley. Apothonia under
dead matted leaves on ^{bark} dead ~~twig~~ branches
~~near ground~~ of down tree. Apothonia

26 A Same 26 B bark flakes living tree

CULTURE 27 ASSAM: KOHARA, KAZIRANGA RESERVE
X-7-61
100 M Forested rocky creek ravine below guest
house. Wet zone. Embiids in tunnels along winding
vines on small saplings, dead branches and beneath
bark flakes of large tree. mixed culture 2-3 spp.
Essembia

28 CULTURE 28 ASSAM: GOLAGHAT 75 M
course-barked roadside tree Oligotoma common
multicolor less common 1♀ only
Oligotoma grumosa

CULTURE 29 & 29A ASSAM: GARAI-PANI
FOREST RESERVE (NEAR GOLAGHAT) 100 M
Semi virgin forest. multicolor under bark flakes
and twisted vines. In latter retreat tunnels
follow path of vine. All females, no eggs
or young seen Oedembia

CULTURE 30 ASSAM: MELENG FOREST RESERVE
X-11-61
(10 MI. S. JORHAT) 100 M Old forest plantation
Embiids (multicolor) in speckled sheet webs in
bark cracks of tree near forest office ♀ only
no eggs or young

31 CULTURE 31 ASSAM: ABHOYPUR F. RES.,
NAPHUK X-12-61
100 M Old forest plantation
same species as above, same conditions but
deep in forest. low hills
Oedembia

CULTURE 32 ASSAM: TIRAP FOREST STAT.
8 MI. E. OF LEDO X-14-61 130 M
Isolated diptero carp tree in swidden field.
Small embryos under hard bark plates, colored
not externally visible. Multicolor in same area
in large bark cracks. Cysothonia n. sp.

CULTURE 33 Same Same habitat
also on damp mossy bark and vines
in virgin forest behind fields. Multicolor
with slightly purple brown speckled web.
Oedemia

CULTURE 34 Margherita 100 M
Large roadside fig tree from police station
and above river. Oligotoma and multicolor
common in brown speckled tunnels possibly
3 species X-14-61 no life XII-11-62
Oligotoma guianana

CULTURE 35 ASSAM: 5 MI W. JORHAT
PRIMARY diptero carp forest. Multicolor
shaded bark 110 M X-14-61
Exocentria

CULTURE 36 ASSAM: JORHAT X-15-61
Large shade tree in residential section. Embryos
(Oligotoma & multicolor) common on bark in
humbertiana & Oedemia X-17-61

CULTURE 37A, B, C, ASSAM: 12 MI. S. ~~JORHAT~~
GOALPARA 25 M Rather dry tank and vine
plantation. Multicolor a culture & on vine
and in path of hanging dead vine.
B+C brown species with pale antennae
in pinky bark of small red seedling
retreat in branch node and vine path
Exocentria

CULTURES 38A + 38B ASSAM: 4 MI. N. BILASHI-
PARA 4 M X-18-61 Park roadside
tree in rice paddy country
Oligotoma guianana 38A humbertiana

CULTURES 39A & B ASSAM: 4 MI. W KOCHAGACHI
Old sal plantation. Multicolor found on
dead vine leaves (mid rib edge) here
smaller, big-leaf understory tree. Also
on bark in the usual manner. Placed
base of Himalayas 75 M. alt.

Oedemia

CULTURE 40 Same place. Small
under bark flake, terminal web
under flake, visible externally only at
edge. All stages but some very fine
colony. Aposthonia n. sp.

CULTURE 41 ASSAM: 10 MI. SW. KOCHAGACHI
50 M Primary forest, occasional
great + terminal web. Multicolor in dead
twigs in usual way. greeniana

discontinued
x-1-63

CULTURE 42 Same place. Surface of terminal
web small up in shallow bark. Possibly 3 sp.
greeniana

43

CULTURE 43 Same place. 1 slightly above
female, dark brown, hair size. Only one seen.
On surface of large terminal web. Several others
in web tissue.

Aposthonia n. sp.

44

CULTURE 44 W. BENGAL: 10 MI. S. MAYNAGUR
85 M x-27-61 Spaced fig tree surrounded by
gum in valley, dense. Embryo in bark
of citrus. Small oligotoma & jet black.

Oligotoma greeniana

45

CULTURE 45 W. BENGAL: LATASURI 100 M
x-21-61 Primary forest on plain at base of...
Embryo in dead twigs of low tree & dead...
Speckled webs at nodes retreat...
Multicolor & Oedemia

C-47 1st instar IV-63

2 pupult of 2♀ XII-7-62

CULT. 46A W BENGAL: CHUNIBATI (10 mi N. SILIGURI) 550 M X-21-61 11th forest zone *Agathidium* in frass and dirt covered tunnels in dead wood of splintered limbs of small roadside tree. 1 apt ♂ collected, 2 pupae winged males seen juvenile no life after Jan. 9, 1962

CULT. 47A+B W. BENGAL: DARJEELING (WILLOWDALE) X-23-61 7000' el Wafer-thin, flakey bark of *Photodendron arboreum* on grounds of D.F.O. *Agathidium himalayensis* adults ♂ & ♀ + young in flake crevices and beneath powder-green lichen encrusted flakes. Common on one tree rare on others. Trees 15' high 6" dia.

CULT. 48^{A+B} W. BENGAL: GINGA, 4500' el 6 mi N of Darjeeling. Multicolor young incl many X-29 pupae on bark of small trees in fruit garden. Tunnels conspicuous. Those of young lavender. ~~with~~ All with much frass.

Oedemia

CULT. 49 W. BENGAL Same as above. Obscure smaller tunnels in⁴⁰ dead twigs of some trees. Tunnels dense, white, almost completely covered with frass. 3 adult ♂ in vial.

Agathidium n. sp.

50

CULT 50 W. BENGAL: BADAMTAM FOREST RES. 1800' EL X-24-61 Native sal forest with small palm and grass understory. Hilly with endemic pine. 60" rainfall. Embryos 3 spp incl multicolor, medium oligotoma (perhaps same as 49) and small sp. in brittle bark of sal and a dry dead bark portion of another sp.

Oligotoma greeniana
Oedemia

BADAMTAN FOREST

Discontinued
x-1-63

CULT 51. Same place a bit lower with
shist rock small ridge. Large *Apothonia*
in matted leaves in sal forest, also under
rocks, various stages but none mature. x-24

Eosembia graveliji?

CULT 52 W. BENGAL: 1000 M zone above PASHOK
Large oaks along road in tea zone. Tiny unbird
in small tunnels in hard bark chips. ♀ flysped
off. May be eggs + young. x-25-61
Apothonia n. sp.

CULT 53 W. BENGAL: PASHOK P.W.D. REST HOUSE x-25-61
2500' EL. Tea area with scattered hard bark sal etc.
Much disturbed by man. Small *Oligotoma* in dead
twigs and bark cracks of tree poinsetta.

Apothonia n. sp.

CULT 54. SAME but multicolor ♀s in split
twigs and loose bark of small trees + shrubs.

Cult 55 WEST BENGAL: KALIMPONG 1275 M x-26
Residential area with scattered sal trees + rows of
poinsetta. Multicolor common in loose bark, dead
twigs, split branch butts, etc. Many penult ♂♀
became diseased.

CULT 56 WEST BENGAL: KALIMPONG 1275 M
Same. *Oligotoma* in bark of trees, under lichens, etc.
tunnels obscured by floss 2 spp? x-26
Apothonia himalayensis?

CULT 57 WEST BENGAL: 6 MI. SW. KALIMPONG
500 M. Multicolor in large sal forest plantation
x-26
Oedembia

CULT. 58 W. BENGAL: 9 MI. S. TISTA BRIDGE
350 M X-26-61 Canyon forest shaded side
Multi color in bark crevices, under vines, etc. Oedembia

CULT. 59 W. BENGAL: SILIGURI X-26-61
Dry bank of roadside trees Oligotoma humberiana

= 6 MI. N.E. BORIO
CULTURE 60 W. BENGAL: 24 MI. S.W. RAUMAHAN
N.E. slope of low hills just S.W. of Borio
Lava rock with scrub second growth, Occasional
large mango tree. 225 M elev. (New
life zone) End of wet season but rained all
day on X-30-61 220 M

Large pale ambiid in matted leaves and
and between stones in shade. Some present
May be several species.

Oligotoma new annandalei
A, B, C

61 CULTURE 61 Same place Mixed culture of
species on bark of trees under flakes and in
61c Oedembia crevices. One small sp with pale or may be
spathula
61c small apoth. n. sp. Embiidae Note 61 and others for some stone
61B nigra group Apocrothonia n. sp. or minuta, 61A O. nigra group
Olig n. sp. annandalei

62 CULTURE 62 Same place. Seed head of
Rafflesia-like plant. Top half dead, filled with
medium-sized pale ambids. Tunnels extend
between ripe and green berries on stalk
Oedembia

63 CULTURE 63 A + B. W. BENGAL: 40 MI. NE JUMTA
X-30-61 100 M Hilly lava rock area. Patch of
soil on rocky slope with rocks lined up
in low walls. Tiny ambid, incl. pupae etc
in small tunnels on soil surface under rocks
Some medium sized species too.

63B Oedembia O. nigra

CULTURE 64 Same place.

Pseudembia juv. under rocks and in matted leaves between heaped rocks. Tunnels loosely spun, devoid of frass, purple when fresh. Emb. look into round hole in soil. Emb. near surface because of recent rain. Some perult of

Oedembia

O nigra group

CULTURE 65 A+B W. BENGAL: 12 MI. N.E.

DUMKA 200 M barren grassy, flat-topped ridge with sedimentary rock slabs. *Pseudembia* & *humbertiana*? beneath rocks may be same sp. as 64 tunnel similar. Numerous specimens.

O. humbertiana

CULTURES 66 A+B. W. BENGAL: 5 MI. SW. BCI-

X-30-61 Small soil trees on hill slope partially with lava rocks. Emb. in hard bark flake mostly small species 66A *Apothonia* small n. sp.

CULTURE 67 A+B W. BENGAL: ALIPORE ZOO L.

GARDENS XI-5-61 Old trees in 100 yr. old zoo grounds. Emb. on every tree 2-3 spp. in each tube incl *minuta* + pale-sided n. sp.

Some tunnels in dry soil at tree base 67 *Pseudembia paradoxus*?

CULTURE 68 Same but exclusively *minuta*. Tiny tunnels evident at sides of flakes and penetrate soft under bark 67A *Apothonia* n. sp.

C-68 *gueniana*

CULTURE 69 W. BENGAL: CHANDENAGORE, 23 MI. N.W.

CALCUTTA 75 M XI-6-61 Bark of various trees, esp. mango in shaded grove at edge of city. Several species including one new one with fibrous frass speckled sheet web. *Oligotoma gueniana*.

CULTURE 70 W. BENGAL: DURGAPUR, 175 M

XI-6-61 Pale sp. all in perult in cut over soil plantation. Reddish soil with laterite, horizontal rocks. Emb. under loose dead bark of low stems, split branch butts leaf litter between stems and soil of termite mud.

JUNGLE

67 B
gueniana
minuta
n. sp.

nigra group

CULT. 71 W. BENGAL: 22 NW DURGAPUR 175 M
 XI-6-61 Underside of limbs, bark flakes etc of
 low shrub-like trees in thickets. Lots of lac. Tunnels
 filmy, fress-speckled. Appears to be n. sp. + gen?
 (Camp in old field surrounded by thickets) *nigra* group
 Call this = 10 MI. S.W. ~~AND~~ ASANSOL
 n. sp. *Oligotoma* s. str.

CULT. 72 BIHAR: 6 MI. N.E DHANBAD 220 M
 XI-7-61 Low rolling hills with higher ridge
 collected on rocky spur of ridge among sand
 soil with mossy stone at base. Embroid tunnel
 visible, coming from cracks and beneath surface
 of these stones. Many per. alt ♂♀ collected
 may be same as at 71 *Oligotoma* s. str.
nigra *O. nigra* group

Cult. 73 BIHAR: TULIN 230 M XI-7-61
 Base of koppe-like granite hills. Scattered
 low trees. Several sp. embryos under bark flakes
 (top with pale glaucous) & in rock cracks. ♂♀ heads
 collected under stones. *Pseudembia* ♀
 Collection kept until II-20-64, inspected - no more life

CULT 74 BIHAR: NAMKUM, RANCHI (LAC. INST.)
 XI-8-61 675 M 2-3 sp. Olig on bark of
 scattered shade trees on lawns of Lac Institute
 Prob introduced spp. *Pseudembia paradoxo* ^{instan:} VI-62
 some *gueniana*

discont
 X-1-63

CULT 75 BIHAR: 18 MI. S.E. RANCHI XI-9-61
 650 M 2-3 sp olig on scattered trees in
 semi wild zone. On bark crevices, lichens and
 moss. Sp with jet-black ♀ most common. White
 eggs & 1st instar. *Pseudembia paradoxo*
O. gueniana

76

CULT. 76 BIHAR: 18 MI. S.E. RANCHI (13 MI. S.E. NAMKUM)
 650 M XI-9-61 1 ♀ and young (of killed preserve ♀
 on bark of above trees. Tunnels large & white.
 prob. *Pseudembia paradoxo*
 Very large *Oligotoma nigra* group

77

CULT. 77 BIHAR: 18 MI. SE. RANCHI 550 M XI-9-61
Under stones in semi-cleared agric land. Small webs
entirely under stones. Occasional specimens on web
on stone side may be distinct. All pale, yellowish.
Oligotoma n. sp. nigra group (very large)

78

CULT. 78 BIHAR: 3 MI. W. RANCHI 700 M XI-10-61
Under stones (grains) on low pasture hill top. In
villages. 1 black ♀ all other pale ♀. In
dense white leaf from hole in ground under stones
to web up stone side.
Oligotoma nigra group n. sp

79

CULT. 79 BIHAR: KURU (32 MI. W. RANCHI) 700 M
XI-10-61 Dry bank crevices of mango trees
grove in pasture. Prob Plectambria
Oligotoma lumbelliana
9 MI. W.

80

CULT. 80 BIHAR: GHAGRA 675 M XI-10-61
Sal grove near base of hills. Embuds on side
of small tree and distinct sp. in hanging
twig under its loose bark
Pseudembia?
O. small gueniana

CULT 82 BIHAR: 14 MI. S.E. NETARHAT 650 M
XI-10-61 Sal forest on rocky ridge at base
of escarpment. Several spp. collected in bark crevices
of various trees. One very large sp. present
but no active colony found. Some young may be Oligotoma

CULT 81 BIHAR: 14 MI. S.E. NETARHAT 650 M
XI-10-61 Sal forest on rocky ridge at base of
escarpment. One elongate tan ^{sm.} sp under
stones and matted leaves at edge. Retreats
in holes in sandy soil. End of wet season, cool.
Prob Pseudembia Oligotoma n. sp. not annandalii

Plectambria

Oligotoma

gueniana

CULT. 82 BIHAR: 5 MI. S.E. NETARHAT 1000 M
XI-11-61 Sal forest near crest of escarpment
Stones at edge of forest. Embuds, prob. Pseudembia
paradoxa under edge of stones, silk dense, foot
matted sal leaves one embud per web. Permitt ♂ & ♀
Not found under stones in shade of trees. Some
Oligotoma in some niche Plectambria

Oligotoma n. sp.

CULT 83 BIHAR: 5 MI. SE. NETARHAT 1000 M
XI-11-61 Dry sal forest near crest of escarpment. Trees small, soil poor, eroded. Several spp. Olig in bark crevices of sal. One sp. makes very white, naked silk tunnels. ♀ of this is jet black, 1st instar present. Some small embryos from sides of ^{of stumps} and under stones included. Apsoth.: small n. sp. Apter. ♂
Teraterbiidae

annandalei?

CULT. 84A + B BIHAR: 5 MI. S.E. NETARHAT 1000 M
XI-11-61 Above habitat. Large block of Oligotoma in individual roots with egg masses, some hatching. Tunnels inconspicuous due to frass covering. broad with but few branches along sal bark crevices. Tunnel expanded over site of egg mass. Mass composed of 75 - 200 eggs covered with grayish matrix only operculum visible. Numerous microphysids present, some collected. Colonies often lack ♀, only eggs.
Oligotoma near annandalei

CULTURE 85 BIHAR: 3 MI. N. KODARMA 440 M
XI-12-61 Rocky crystalline ridges covered with low forest, mostly sal. Oligotoma n. sp. on bark of several trees. Tunnels follow vertical crevices and from dark bluish spots densely covered with frass. Embryos mostly present. 10? collected.
Very common Uninhabited forest reserve Oligotoma n. sp. nigra group

CULTURE 86 BIHAR: 3 MI. N. KODARMA 440 M
XI-12-61 Rocky crystalline ridges covered with low mixed forest, mostly sal. Oligotoma spp. mostly in ~~rock~~ crevices on surface of boulders. These tunnels usually pure white devoid of frass but some as above. Also under stones and some bark. Oligotoma n. sp.

CULTURE 87 BIHAR: DEHOUR FOREST 220 M
XI-13-61 Sal forest in shady dell, mixed spp. Rocky, gneiss hill rises abruptly. 1 black, large ♀ on charred sal sapling with dead tips. 1st ^{+ 2nd} instar yellow distributed in crevices down to lower bark. Separated and deep in bark layers. spostula + annandalei

³
all cultures
combined

CULT 88 BIHAR: DEHOUR FOREST RESERVE 220 M
XI-13-61^{ABC} Mixed spp. in bark crevices. One sp with
pale plume. One on rock surface has clear white
tunnels but may be some Oligotoma with fine
tunnels. Oligotoma n. sp.

89A + B
discontinued
X-1-63

^{AB}
CULT 89 BIHAR: PUSA FARM 120 M XI-14-61
Ganges Valley flat farm land with row-trees
Agave expt. slit area "Embic" minor abundant
in bark crevices and soil at base of various trees.
Walls highly elastic. Lavender when fresh. Species
with grass. Females more abundant low on trees
and in soil, males higher. Abundant ♂ & ♀ mature
Some Oligotoma mixed in ^{89B} Oedembia & sanderii

discont.
X-1-63

CULT. 90 BIHAR: PUSA FARM 120 M XI-14-61
Same place. Oedembia pusae in larger mats
like webs similar to minor. Prefers split bark
butts. No adult males but several penult
Oligotoma mixed in Oedembia and sanderii

CULT 91 BIHAR: PUSA FARM 120 M XI-14-61
Same place Mixed Oligotoma & Apothonia
in bark of various trees Also Oedembia
a. indica

CULT 92 NEPAL: 13 MI. N GIRGANS 200 M XI-16-61
Mixed virgin valley forest on gentle slope up to mt.
Beginning of dry season. Insects common in bark. This
culture with "minor" type female (males collected in vial)
plus Oligotoma spp. Oedembia in bark crevices.
Common webs in bark crevices. PLECTEMBIA ?

Cult 93 NEPAL: 13 MI. N. GIRGANS 200 M XI-16-61
Mixed virgin valley forest same place as above
(92) but larger sp. Oedembia at long ends and
bases. Also possible Oligotoma mixed in
small Oedembia

CULT. 94 NEPAL: 13 MI. N. GIRGANS 200 M XI-16-61
Same as above. Small spp. in superficial bark

CULT 95 ABC NEPAL: 10 MI. SW. SOPIYANG 1800M
(BETWEEN PALUNG + KATHMANDU)

OEDEMBIA

Dry road bank in region of rain shadow and stunted ~~plants~~ trees and shrubs. Embiids common in purplish, frass-covered, elastic silk in soil crevices on SW exposure. Absence on shaded face Oedemia sp. Most in penult instar many males. Tunnels densest in holes where embiids rest. Could this be an overwintering phase?

CULT 96 NEPAL: CHOVAR VILLAGE, KATHMANDU Valley XI-18-61

Oedemia

Trail bank (N.E. exposure) crevices. Tunnels completely covered with bits of lichens, thus obscure. Embiids in dense, elastic, white silk. Must be same as above but penult males average smaller. Pasture land. Larger tunnels on underside limbs of large trees

CULT 97 A, B NEPAL: KATHMANDU Temple forest which must be remnant of old valley forest. Embiids very common in tunnels of Cult 95 type but in bark crevices and under lichens. Often only one embiid per tunnel but at times several in colony. All penult Oedemia. XI-17-61 OEDEMBIA

CULT 98 NEPAL: KATHMANDU Row of eucalyptus trees with soft redwood-like bark. Above sp. in bark crevices. XI-18-61 OEDEMBIA

CULT 99 NEPAL: 3 MI. NE PALUNG 1840M XI-22-61 Under stones in pasture with small pines and oaks. a rain shadow, dry zone. Steep slope, small rocks. Embiids rare. Prob. Parembia. Webs at times purple

100

CULT. 1001 NEPAL: 2 MI. NE. LAMIDANDA 1660M XI-22-61 Pine-oak zone on steep slopes. Conspicuous white webs on ^{soft} granitic road bank rocks. Tunnels purple when fresh, elastic, lead to crevices. Some mat ♀ and 3rd instar young. Some found in leaf litter in crevices. Parembia?

Ooemia
nepalica

CULT 101 NEPAL: 2 MI. N.E. LAMIDANDA 1660 M XI-22-61
Pine-oak zone. Under side of planks of small
bridge culvert. Large white tunnels with glistening
surface. No sun. Embiids must feed on superficial
plank surface. Prob Parambia

CULT 102 NEPAL: 2 MI. N.E. LAMIDANDA 1660 M XI-22-61
Pine oak zone. Some juv. from road bank but
most from under bark of small oak sapling. May
be one spp. of Parambia Eosembia
Oligotoma large "nigra"

CULT 103 NEPAL: RAPTI VALLEY, 10 MI. NW HITAURA
400 M XI-23-61 Valley with extensive virgin mixed
sal forest. Parambia in various niches esp. lower
bark of small ^{dead} twigs and branch nodes. Also on
underside of large log slanted about 8 ft off ground
Several adult ♀ and some 3rd instar young cultured
& adult ♂ collected Oligotoma very large nigra
Edaphambia

CULT. 104 NEPAL: RAPTI VALLEY, 10 MI. N.W. HITAURA.
400 M XI-23-61 Above place but mostly on sunny
ridge. ^{Small} Oligotoma with pale thoracic bands, incl young
and 1 tunnel ♂ in bark cracks and under flakes
esp. dead bark of small saplings Apothonia

105

CULT 105 NEPAL: RAPTI VALLEY, 10 MI. N.W. HITAURA
400 M XI-24-61 Above place. Dead bark around cut off
branches of small tree Apothonia with banded thorax ♀
and apt. & alate males Same sp. as #104 Apothonia
n. sp.

CULT 106 NEPAL: RAPTI VALLEY, 10 MI. N.W. HITAURA
400 M XI-24-61 Above place. Shaded tree trunks, some
large, buttressed. Conspicuous webs of 3rd instar radiating
from large central tunnels. Silks white devoid of feces
or other cover. Most colonies (3) lacked embiids but
had numerous microphyids. Several 2-3rd instar cultured
from one colony. Eggs laid in flat mass. Coated with
dark gray material Eosembia nepalica

107

CULT 107 NEPAL: RAPTI VALLEY 10 MI. N.W. HITAURA
400 M XI-24-61 Several Parombia or Oedembia in branch
wide loose bark Oedembia Pseudembia

CULT 108 NEPAL: 2 MI. N. AMLEKHGANJ 450 M, XI-24-61
Foot-hill area with mixed sal forest. Pines just above.
This culture mixed Oedembia, Apothonia etc in bark
flakes of living & dead trees. Oedembia

discont
x-1-63

109

CULT. 109 NEPAL: 2 MI. N. AMLEKHGANJ, 450 M, XI-24-61
Small Apothonia in tunnels under arched sheet of
sal bark on dry ground. About 6 spec., some ante-
penult. ♂ Apothonia n. sp.

CULT 110 NEPAL: 2 MI. N. AMLEKHGANJ, 450 M XI-24-61
Mostly Oedembia in and under dry, thick bark of
large sal log. Bark cracking off.

CULT 112 U.P.: GORAKHPUR (REST HOUSE) 150 M
Garden. ^{XI-27-61} Tunnels in scarred branch axis with curled
dead bark. Dry situation. Several immature Parombia (?)
cultured. Saundersii in same niche 1 ♂ collected.

CULT 113 ^{A+B} U.P.: KANPUR (Allen Forest Reserve)
^{150 M XI-29-61} Mixed forest in dry season. Embryo in splintered
branch butts, especially of suckers at base
of trees. Also in and under loose dead bark. Rather
rare in open bark because of dry climate.
These cultures contain mixture of 2-3 Oligotomas
possibly Oedembia and Parombia. Small Parombia

CULT 114 U.P. KANPUR (above place)
Entire culture from dead bark and splintered butts
of suckers at base of large trees at edge of forest

CULT 115 U.P.: 12 MI. S.W. BAREILLY 190 M XI-29-61
Bark of mango in grove in agric. zone
Small with pale sides.

CULT 116 A+B, U.P.: BHOWALI 1800M (7 MI. E. NAINI TAL.)
 Topotypic Embria major clumps. XII-1-61
 Mostly pine forest with mixed oaks in certain areas.
 Steep ridges and ravines. Talus like stones in ravines
 and S.W. exposure. Major very common on E.
 and S.W. slopes and open ridge tops. Colony consists
 of very large central tunnel and radiating small
 tunnels of young. Large tunnel connects with soil
 burrow and may radiate amongst leaves to adjacent
 stone. Usually only one colony per stone. Adult
 females old with antennae eaten short. Only one
 with eggs. These were in a loose clump. Most young
 in 2nd instar but some 1st and 4th collected.
 No trace of males Parambia major

CULT. 117 U.P.: 10 MI. N. KATHGODAM 1240 M XII-1-61
 Moist pine forest on winter slope of cyn, some
 what more sunny on E-W spur where collecting took
 place. Small ^{white} tunnels in matted needles and debris beneath
 small stones. Each with but one small embryo of
 unknown genus. Type lot Oligotoma ligulata n. sp.
 mature ♂♀ VI-10-63

CULT 118 U.P.: 10 MI N. KATHGODAM 1240 M XII-1-61
 Cool slope in above place large colonies of Parambia
 on stungoo and other trees. Alder like species of tree.
Parambia

CULT 119 U.P. 10 MI. N. KATHGODAM 1240 M XII-1-61
 Cool slope in above place. Small embryos in ramifying
 bluish tunnels in bark crevices. Rather extensive. No large
 parent tunnels evident. Doubtful appear to be Parambia
 On bark of Alder-like tree. Oligotoma large n. sp.
ligulata

120 CULT 120 U.P. 3 MI. N. KATHGODAM 700 M XII-1-61
 Rocky ridge in oak forest. Embryos in bark of various
 species. Surface tunnels entirely covered with moss. Embryos
 2-3rd instar deep in crevices. Adult female tunnel large but
 usually unoccupied. 1 tired ♀ collected and cultured
 1 dead ^{dry} female placed in alcohol. Ecology like Nethasbat

Pseudembia
paradoxa
Oligotoma
 n. sp.
trichanata
~~trichanata~~

CULT 121 U.P.: 3 MI. N. KATHGODAM 700 M XII-1-61
Bark in above place. May include several sp.
1 colony of Parembia seen in this zone. Seemed to be
empty 1♂ Oligotoma trihemata IX-24-63

CULT 122 U.P.: 3 MI. N. KATHGODAM 700 M XII-1-61
Under stone on soil ridge. One small embryo part
same as cult. 117 2♀ only X-11-62

CULT 123 U.P. KICHHA (S. OF KATHGODAM) 310 M
XII-2-61 Parembia truncata n. sp.
Plantation of trees in valley forest zone. Many
remnant trees along road. Dry season
Large tunnels at times meeting long dead 2-3"
stumps with loose bark also on branch nodes
etc. Most antepenult, one male penult.
Oligotoma and Metembia at times mixed in some
mass of silk

CULT 124 A+B U.P. KICHHA 310 M XII-2-61
Same place as 123 Tunnels of Oligotoma common in
most trees and dead stumps and under loose bark
Some tunnels filmy, ~~not~~ sheeted over bark surface
and cover speckled with froese. Others forming
dense white typical tunnels. Many adult ♂♀
and a few penult of jet black sp. May
be grigia or relative. Cultures should include
other species 124B Oligotoma nigra?

125 CULT. 125 ^{A+B} U.P.: KICHHA 310 M XII-2-61 METEMBIA?
Same place and niche esp. on ^{and under} dead loose bark
of slender stumps. Small multicolored juveniles
some penult ♂. One larger dark female and 1 penult
♂ of a new and distinct species.

Edoxyembia?
Distinct genus

CULT. 126 U.P.: DEHRA DUN (Forest Research Inst)
XII-9-61 Damaged ends of branches etc of shaded
low mango trees Webs heavily covered with frosts
covering surface of limb and retreating into cracks +
holes *Oedembia dobhali* penult ♂ ♀

CULT. 127 U.P.: 7 MI. S.W. DEHRA DUN 600 M XII-10-61
Virgin sal forest on sides of valley, flat about
Mixed species. Beginning of cold dry season. Embiids
numerous on bark of smaller trees and limbs
esp. in crevices, holes, and splintered butts
Tunnels frost-covered apparently *Oedembia*, *Metembia*
+ *Oligotoma*. Most in penult stage. Large culture

128 CULT 128 U.P.: 11 MI. S. MUSSOORIE 1200 M
XII-10-61 Steep, rugged slopes and ridges with
xeric flora, bushy with patches of *Euphorbia*
and scattered *Erythrina*. *Parembia* webs common
on dead limbs, tunnels running along underside,
often beneath loose bark. At times tunnels enter
hard dry soil at base of ~~stubs~~ shrubs. Small
culture with about 6-8 penult ♂ ♀. PAREMBIA
also tried oak forest just below Mussoorie,
1800 M, some scattered stones but no trace of
embiids.

CULT 129 BIHAR: PUSA FARM
2-3 *Oligotoma* from fibrous, dry interior of old
squash. *O. humberiana*

CULT 130 - U.P.: 8 MI. S.W. DEHRA DUN 750 M
Mixed hill forest, mostly sal. 1 antepenult. ♂, prob
Oedembia, on mossy bark of tree in cym, sunny
side *Parembia*

CULT. 131 - U.P.: 14 MI. S.W. DEHRA DUN 525 M
Dry, low hill forest, mostly pine. 2 juv
embiids under stone in grass. *Oedembia* or *Metembia*
in dry bark of dead limbs but rare, colonies empty.

CULT 132 PUNJAB: 3 MI. S. AMBALA 350 M

Roadside strips of acacia etc. Embiid tunnels common around bark scars and spintend suckers. Tunnels extend into dry cracked ground.

Oligotoma in frass-free, pure-white tunnels fair number collected. *Parambia* in tunnels in soil at base 2-3 collected. One adult female

Olig with paler head collected under stone
O. humbertiana *Parambia valida* 132'

CULT 133 PUNJAB: BEAS (S.E. of Amritsar)

250 M XII-12-61 Flat, semi arid agric land with broad strips of mesquite-like acacia along road. Dry and dusty. Embiid retreats in split branch and small stump ends. 1-2 Embiidae species, many penult. Some fly puparia in tunnels. *Oligotoma* mixed in probably.

Parambia

CULT 134 PUNJAB: BEAS 250 M XII-12-61

Same place as #133 *Oligotoma* under small stones
Small *Parambia*

CULT 135 W. PAKISTAN: LAHORE 250 M XII-13-61

Region like Beas, dry flat irrigated farm land. Colonys under artificial stones on artificial hill in park next to zoo. Webs very dense, elastic, not common. 3-4 embiids collected, one penult. ♂. Tree cover *Prosopis*. No embiids seen on bark of park trees - bark very dry and free of epiphytes. *Parambia*

CULT 136 W. PAKISTAN: 3 MI. N. KAMOKI (10³ MI. S. GUJRANWALA)

265 M XII-14-61 Flat agric land with grove of large planted trees, no underbrush, only grass. Dry season. No embiids evident on bark. Colonies found in soil cracks of ^{black} *Compositus* ant nest at bases of tree. Tunnels also under loose bark below soil level. Small Embiidae prob. same as #135
Mostly penult stage. EDAPHEMBIA

CULT. 137 W. PAKISTAN: 4 MI. N.W. KHARIAN 350 M
XII-14-61 Heavily eroded sandy ridge covered with
Mesquite and shrub-like trees and grass. Embiids
under soft sandstone rocks. Tunnels radiate various
direction. Several tunnels penetrated about 2-3 inches
and had about six embiids concentrated. All in
penult stage. Appears to be a distinct sp. of
Embiidae. About 15 collected.

Some species as 136 also collected under stones
of nearby rest house grounds. Culture is thus
mixed. Parembia + Lobosombia

CULT. 138 W. PAKISTAN: 4 MI. N.W. KHARIAN 350
XII-14-61 (District Council Rest House) in bad lands.
Species 136 collected under old bricks and brought
in stones. One penult. ♂ was very small and
may be distinct. Echysombia

CULT 139 W. PAKISTAN: 13 MI. N.W. JHELUM 350 M
(4 MI. N.W. DINA) XII-15-61 Low eroded hills covered
with Acacia and thorn bush Oligotoma under small
stones. Adult ♂ + ♀s mostly. Pure culture
Olig. nigra

CULT 140 W. PAKISTAN: 13 MI. N.W. JHELUM 350 M
XII-15-61 Same place. Larger species, possibly
2 n. sp. Embiidae. Under stones, esp. in shaded side of
Acacia trees. One colony had about 6 half grown
Others only one per tunnel. Parembia

CULT. 141 W. PAKISTAN: 13 MI. N.W. JHELUM 350 M
XII-15-61 Same place Mixed culture Oligotoma +
Embiidae. Echysombia?

CULT 142 W. PAKISTAN: ⁵~~12~~ MI. S.E. RAWALPINDI
500 M XII-15-61 Shaded slope of rough conglomerate
cyn. Thorn bush on higher slope, larger trees
lower down. Embiidae in rotted out branch
hole of ^{Prosopis} Tunnels in blacken old wood, especially at sides
of hole. 20 specimens, esp. penult ♂ cultured.
Parembia

CULT 143 W. PAKISTAN: 5 MI. S.E. RAWALPINDI
500 M XII-15-61 Parambia under stones, in shaded
conglomerate cliff cracks and in scarred acacia bark
prefers shaded slope. Parambia

144 CULT. 144 W. PAKISTAN: 5 MI. S.E. RAWALPINDI
500 M XII-15-61 Lobocombia? under stones in acacia
leaf litter in semi-shade Parambia

CULT. 145 W. PAKISTAN: 20 MI. N.E. RAWALPINDI ~~850~~ 950 M
XII-16-61
Rocky foothills vegetated with wild olive and other
low trees. Heavily eroded. This culture from rotting
bark of low stumps. Within 6" of ground.
Oedemia-like cells also on bark surface but
all empty. Parambia in bark scars + holes

CULT. 146 W. PAKISTAN: 20 MI. N.E. RAWALPINDI 850 M
XII-16
Rocky foothills. Small species under rocks. Tunnels
radiate in ^{hard} soil. Usually about 6 young per nest
concentrated in deeper tunnels, about 2" deep. No adults
prob Parambia valida

CULT. 147 W. PAKISTAN: 20 MI. N.E. RAWALPINDI 850 -
950 M Rocky foothills chiefly covered with wild
olive. Pines in higher zone. Parambia under stones.
3rd to 7th instar. XII-16-61 First winter rains falling

CULT 148 W. PAKISTAN: ~~20~~ ¹² MI. N.E. RAWALPINDI 650 M
XII-16-61 Parambia under stones in ~~olive~~ ^{thorny} scrub on
first rocky foothills.

CULT 149 W. PAKISTAN: 12 MI. N.E. RAWALPINDI 650 M
XII-16-61 Low, thorny scrub on first foothills of
Murree Hills. Small n. sp., culture includes adult
♀, penult ♂ and several young. Colonies under
stones under brush.

Edaphembia

CULT. 150 W. PAKISTAN: MARGALA PASS (NR. TAXILLA) 625M
XII-17-61 Rocky, ledgy limestone ridge with low
thorn bush. 1 sp. multicolor embiid, some penult,
in leaf litter caught in rock crevice ~~at~~ at ~~the~~ base of
shrub-like tree. Shaded slope. Embiids rare.

Small Parembia

CULT. 151 Same place but on exposed slopes, mostly
under small stones. Mixed Oligotoma + Parembia

Olig. nigra

CULT 152 W. PAK.: ATTOCK 360 M XII-17-61 Barren
rocky hills composed of vertical shale Oligotoma
and Embiidae. Litter under larger stones. Parembia

CULT 153 W. PAK.: 5 MI. W. PESHAWAR, ⁴⁰⁰~~390~~M, XII-18-61
Thatcher's back yard Small stones in exposed low grass
Oligotoma + small embiid. Parembia also in this place,
esp. in litter of harvester ant nest
Parembia

CULT. 154 W. PAK.: 8 MI. E. PESHAWAR 400M XII-18-61
Roadside strips of trees on highway. Embiidae under
bark of low stump, not yet rotten Parembia

CULT. 155 W. PAK. 8 MI. E. PESHAWAR 400M XII-18-61
Same place but Oligotoma under stones along RR
embankment Parembia

CULT. 156 W. PAK. SPINAWARAI, 9 MI. W. KOHAT, 650 M
XII-19-61 Stony margins of fields of grain in small
valley in rocky hills Parembia (etc?) in leaf littered
stones. Lobosembia

CULT 157 A+B W. PAK. SPINAWARAI, 9 MI. W. KOHAT 650 M
XII-19-61 Breezy, stony margins of grain fields
at base of rise. Embiid tunnels radiating beneath
and between ^{small} cobble stones. Common. All in penult.
in star - a stout tan sp. Possibly a small multi-
color embiid mixed in. Embiidae Edayssembia Lobosembia

CULT 158 W. PAK. 2 MI. N. KOHAT 600 M XII-19-61
Arid cyn in rugged limestone mtns. Numerous stones
on ground near loose Prosopis. Common brown embiid
same as 157 in between and under small rocks. Very
common. no life XII-11-62

CULT. 159 W. PAK.: 2 MI. W. CHERAT 1200 M XII-20-61
High ridge with shrub-like trees, Olives, Acacia, etc.
Bunch grass. 1 ♂ penult. under stone, some webs collected
but perhaps no other live specimens in tube
stone semi-shaded. Parambia

CULT 160 W. PAK.: 2 MI. W. CHERAT 1200 M XII-20-61
Same place, Shaded side of ridge crest. Parambia
from rocks ^{next to} roots of bunch grass. Another large
colony under rocks at base of tree. 1st colony all
2nd instar. 2nd colony largely penult ♂ & ♀
Some ♀ very pale (may be fulvus mutation)
Many old tachinid puparia in webs.
Parambia

CULT 161 W. PAKISTAN 6 MI. W. CHERAT 900 M
XII-20-61 Gully farther down slope. Embiids
under small stones, esp. at base of shrubs.
Oligotoma and n. sp. not common. Parambia

CULT. 162 A+B. W. PAK. TORKHAM (W end of
Khyber Pass) 750 M, XII-21-61 Rocky wash of cyn
patch of stones and debris at base of bush near
irrigation station. Oligotoma and small multicolor
embiid. Many individuals cultured Edaphembia
O. nigra
Parambia

CULT 163 ABC W. PAK.: ATTOCK (W side river)
360 M XII-22-61 Barren, rocky hills (Attok slate)
several spp under stones Edaphembia

163c 1 parambia stage penult 9 months
discontinued II-12-64

CULT 164 A-B W. PAK: TAXILA 550 M XII-22-61
Near Buddhist ruins. Small stones in bermuda grass
beneath trees. Several species, abundant
O. nigra and *Elaphembia*

CULT 165 A-B W. PAK.: RAWAT 600 M XII-23-61
(Near Magbra Tomb) Stones along low sandstone
ridge. Dry grass with widely scattered acacia.
Embriids common, in surface tunnels. Penult stage.
Jan species and small multicolor

Scattered colonies on old stone walls of tomb.

Lobosembia

CULT 167 DELHI RIDGE, NEW DELHI 260 M XII-30-61
(near airport) Rounded ledges of metamorphic rock
forming low ridge. Vegetation thorny, rat-claw-like
tree-shrubs, numerous loose rocks. Soil damp.
Large culture contains many *Parembia* after one
individual per isolated rock retreat tunnel (made
by embriid) extends into firm soil, rock crevices, etc.
At side of ~~about~~ piled rocks and tree bases with
loose ~~rock~~ bark tunnels more numerous and extend
from stone to stone beneath matted leaf litter.
Also mixed in are 2 spp. *Oligotoma* (*nigra*? *humidiorum*)
and a *Metembia* (1 male caught).

Parembia

CULT 168 Some place. Small culture, mostly
Metembia from loose bark at soil level.

CULT 169 U.P.: KITHAM LAKE, 11 W. AGRA
200 M XII-31-61 High *Prosopis* forest near
lake, extensive planted area in vicinity
Dry season. Most collecting in subsoil, dead
bark of small stumps. Often many *Parembia*
retreated to lowest level of tunnels (about 6" down).
Some tunnels in soil. *Metembia* also collected
in some niche and under dead bark higher in
trees. *Oligotoma* present under stones and dry
branch butts. Few females of *Olig.* but many
penult of other two genera. Large culture.

Elaphembia Parembia nigra

CULT. 170 U.P.: KITHAM LAKE, 11 MI. W. AGRA

Same place as 168, 169 This culture contains small multicolor and 1 adult ♀ Oligotoma. The former with perult ♂ all under loose bark of low stumps, near and below ground level. I-2-62 One medium multicolor collected on silty bank. Parembia

CULT. 171. Same as above but moderate multicolor from one colony under loose bark of slender, high stump of acacia. Some perult ♂. I-2-62
Parembia + Edaphembia

CULT 172 U.P.: NAGLA BIRBHAN, 240 M., 16 MI. S.W.

KAGARAU (30 MI. S.W. AGRA) I-2-62 Dry season. Low hill densely covered with red sandstone rocks and slabs with scattered OAK-LIKE trees (covered with brown, dead leaves) called DOHE.

Parembia sparsely present, One nest per stone. Few surface tunnels lead to deep subterranean hole apparently made by embiid. This culture made up of many 2nd instar young on a surface web all of one brood. This seems to be an original plant formation. Parembia

CULT 173 Same place and niche Culture mostly a small multicolor living in filmy webs following burrow tracks in ^{hard} soil under stone. 1-2 embiids per tunnel some adult ♀ and ♂ cultured also several perult. Culture also includes at least one juv. female of a fulvous species Parembia

CULT 174 RAJASTHAN: GAME SANCTUARY, BHARATPUR 225 M

I-3-62 Swampy black cotton soil with low trees. Embiids common on all dead bark and litter. prob same as Kitham lake. 2 Metembia and several Oligotoma cultured. Souderain ♂ collected.

Parembia

CULT 175 RAJASTHAN: MAHWAH, 280M 5-I-62

Low, abrupt rocky ridge, goat pasture denuded of shrubs and trees. Embiids under stones around and within walls of stone castle. Several species mixed in this cult. result of 2 spp. of Embiidae Dry season

Parembia & Edaphembia

CULT 176 Same place. 1 ♀ (uniform block), large sp. and eggs. Eggs laid in one plane on upper surface of web where it contacted underside of stone. Tunnels broad, suggestive of Parembia. PAREMBIA

CULT ~~176~~ 177 RAJASTHAN: DAUSA, 1650 ft 5-I-62

High crystalline, rocky ridge rising from agric plain (numerous rock cutters & gravel makers) Several species common under scattered quartz rocks, esp. around bases of shrubs and large euphorbia. 1 ♂ humbertiana collected and 1 large male of Metembia Plectembia

All added to one large culture jar
Parembia & Edaphembia

CULT. 178 RAJASTHAN: HILLS E. OF JAIPUR 450M 6-I-62

Rocks in sandy grassland at base of old castle walls. Region not normally rocky on this sand. Embiids in nearby hills. Edaphembia

CULT. 179 RAJASTHAN: HILLS E. OF JAIPUR 450M 6-I-62

Small N-S valley and ravines in rocky ridges. Numerous rocks sheltering 2-3 spp Embiids in semi-shade of low trees. Natural grazed vegetation. O. nigra

CULT 180 ^{A+B} Same place but pure Parembia

182

CULT 182 RAJASTHAN: KISHANGARH 450M 7-I-62

Low rocky hills with scattered Euphorbia (copper ore) Dry conditions small embiid colonies numerous but embiids not at surface except mostly under one large stone. 8 adult males collected EDAPHEMBIA

CULT 183 Same place Parembia under stones on shaded side of Euphorbia tunnels visible at ground edge of stones go from stone to stone and down deep hole.

Parembia

CULT. 184 RAJASTHAN: 5 MI. W. BEAWAR 500 M 7-I-62

Rugged, granitic, arid mtn range. Chiefly covered with cactus-like Euphorbia. Small embiid ("minor") chiefly collected. Moderate embiid and Parembia may be mixed in. All under stones. Dry season.
humbertiana

CULT 185 RAJASTHAN: HILL S. OF PALI, 275 M, 8-I-62

Very dry rocky granitic hill just S. of Pali (site of Jain temple). Small embiid tunnels common under shaded stones, but very few embiids at surface. Several Parembia colonies seen. Culture is weak with only 2 or so small "minor." Low thorn bush country, Mesquite on flats.
Edaphembia

CULT 186 RAJASTHAN: 5 MI. N.E. SUMERPUR 350 M 8-I-62

Dry valley with low granite outcrops. Granitic ridge just East. Collected under stones along road, esp in shade of ^{road} border trees. "Minor" webs common but rarely occupied. Parembia also present esp between stones piled long ago at base of low shrub. A medium species also present. This culture all Parembia mostly penult + several 2nd instar. 2 adult ♂ collected this date.

Embidae Parembia n.sp. 1 ♀ Oligotoma humbertiana? + maybe ^{pale} penult ♂ or small Parembia

CULT 188 Same place: Several small embiid

CULT 189 RAJASTHAN: E. SLOPE MT. ABU 400 M 9-I-62

1 Large n. gen ♀ pale head, prothorax + abdomen also one nest with 1st instar. All under stones in deciduous bushy forest, semi-shade. Many tree spp. Distinct from plains.
Echinembia

Cult 190 Some place and niche. Few Parembia and some adult ♀ Oligotoma Cult 190A Same but only Oligotoma
SAUNDERSII

CULT 191 Some place One colony of medium embiid all penult. Developed on low stumps and retreated into soil and adjacent stone.
O. saundersii
Parembia

CULT 192 RAJASTHAN: E. SLOPE MT. ABU 750 M 9-1-62
Higher forest with bamboo. Embiids colonies on split
branch ends, bark, etc but all empty. Several genera.
Culture contains 2 adult ♀ Oligotoma from shaded
road bank crevices.

CULT 193 RAJASTHAN: 3 MI. S.E. SIROHI 450 M 9-1-62

Rocky, bushy pasture. Very dry conditions
Parembia under stone, often in common with small
Embiid and Oligotoma. These cultured in

CULT 194 Elaphembia Parembia

CULT 195 GUJARAT: 5 MI. S. PALANPUR 250 M 10-I-62

no life
XII-11-62

Dug out of soil at base of "mesquite" in black cotton soil
1 mat ♀ Oligotoma & 1 juv ♀. Webs rare above ground surface
in Mesquite flat in rolling farm land. Dry season

CULT 196 GUJARAT: 13 MI. W GODHRA 150 M 10-I-62

1 pale embiid dug out of black cotton soil under small
stone (about 6" down) web very white, elastic. 1 juv
prob Oligotoma ^{type of} same place but next to mesquite stump
Environment: low thorn scrub, mostly mesquite. Dry season

O. saundersii

CULT 197A+B GUJARAT: CHANCHELAO, 4 MI. E. ~~GODHRA~~ GODHRA 175 M

12-I-62 2 cultures of Parembia 197A ^{1♀} with eggs, 197B
with 2nd instar and 1 ♀. Eggs white, naked, deposited in
double or triple layer mass on upper surface of web.

Environment: Dry, rolling, flat land with sparse
deciduous forest, mostly stunted teak. Collected in vicinity
of kopje of granite surrounded by scattered rocks and
brick debris of old temple.

Other sp. embiid present, also Oligotoma, neither collected or cultured
197A Parembia

CULT 198 GUJARAT: MANGAL MAUDI, 13 MI. W. DOHAD 300 M 12-I-62

Rolling, dry teak forest with many lava rocks on
low knolls and ridges. Embiids rather common but
hard to collect due to heat and dry soil. This
culture comprises adult females, small, jet, shining black.

saundersii

199

CULT 199 GUJARAT: 13 MI. W. DOHAD 300M # 12-I-62
Same place + niches as 198 This contains one adult ♀ of
a large ♀, n. sp. black Oligotoma and one female of a
smaller species, EMBIA TOXONEMBIA n. sp.

TYPE

LOT EMPHER LONGATA Lumbertiana
CULT 200 GUJARAT: Same place as 198-199 Tube contains
one adult ♀ Parembia. PAREMBIA

CULT 201 MADHYA PRADESH: 6 MI. N.W. BAGH, 360 M 12-I-62
Lava plateau with sparse, dry, teak forest. Brief steep.
1 adult ♀ pale, multi colored embiid with eggs. 1st instar
young from neighboring tunnel included (may not survive)
Eggs were white, naked and in a clump (much like
ant eggs)

clustered

CULT. 202A + B MADHYA PRADESH: 6 MI. N. TANDA 550 M

Larger embiids
have red mites
sucking on body

13-I-62 Ghat slope, lava rocks in dry, sparse teak
scrub. Black cotton soil deeply cracked, damp 6" down
underlaid with cracked rock. Oligotoma present in
branch both and bark but not collected. Embiids
cultured from those carefully excavated. Cultures contain
at least one adult ♀ of new Embiid and 1st-3rd
instar young. One ♀ had eggs in clump as desc. in #201
1 ♂ collected, 1 small male cultured.

One nest made
use of dead leaf
cells of
Megachile
nest.

METEMBIA

CULT. 203 MADHYA PRADESH: 5 MI. S.W. MANPUR, 480 M

13-I-62 Ghat slope, similar to #202. Some embiid
as collected in 202 present but not cultured. This
culture contains 1 mature female and eggs of Pseudembinae
also one juv ♀ of same. Much debris of other colonies
included, may or may not have embiids within.

CULT 204 Same place. Contains 1 mature female of
multi colored embiid, possibly same as 202, but
larger. Also debris of other colonies. Most good
colonies in this ghat zone make use of ant burrows
packed with seeds and grass fragments.

A+B

CULT 205 - MADHYA PRADESH: KHALGHAT (=PHALGHAT) 200 M
14-I-62

Open bluffs on S. side of river next to Dak Bungalow
Under large lava rocks. Black cotton soil. Several species
rich. Oligotoma, large + small Embiidae. (Latter collected 107 ea)

Lumbertiana
Elaphembi

CULT. 206 MADHYA PRADESH: JULWANIA 300M H-I-62

Treeless, open hillside strewn with lava rock, black cotton soil. Embriids rare but 2 brown ♀♀ with tan head, collected and cultured. Dry conditions.

CULT. 207 MADHYA PRADESH: 8 MI. S.W. SENDHWA 590M H-I-62

Dry, hilly teak forest with scattered lava rocks. Embriids rare but 2 small Embriid ♀♀ collected (multi-colored *Toxophrembia* PAREMBIA)

CULT. 208 MADHYA PRADESH: 10 MI. S.W. SENDHWA 400M H-I-62

~~Green~~ trees along creek bed permanent shade. Many embriid signs under bark flaked, dead stumps bark etc. All embriids retreated out of reach, due to dryness. Culture contains 1 adult ♀ multi colored embriid, and 1 3rd instar tan (*Oligotoma?*), and possibly some 1st instar, from crevices of dead burned stumps. *N. gen & sp. Teratermbidae*
O. humbertiana DIED OUT VI-64

A+B

CULT 209 BOMBAY: 17 MI. N.E. MALEGAON, 450M, 15-I-62

Lava bluffs in barren, treeless countryside, tops and sides strewn with lava boulders and covered with sparse, small, thorny trees and shrubs. Embriids rare. Very small species most common but no adults collected. Several 1st and 2nd instar in each culture. One culture contains 2 adult ♀ and the other 1 adult ♀ of a large dark brown species with head, prothorax, & legs mostly orange. Each ♀ had several large eggs attached to soil and coated with some substance. These eggs were placed in the cultures.

209A

Metembia

Plectembia colorata
type series

Tunnels of large species were pure white dense silk under large rocks, esp. near grass roots at edge. Eggs and associated ♀♀ were near soil surface (black cotton soil) Very dry, hot conditions, 85°F in shade.

CULT 210 Same place but only early young of small embriid. *Metembia*

CULT. 211 BOMBAY: 3 MI. N.E. CHANDOR, 840M, 15-I-62

Brush country at base of high lava bluffs. Scattered stones on dry black cotton soil. Small embriid present but not collected. Culture contains: 1 large orange + black ♀ and associated 1st instar from under stone in shade of *Lantana* bush. 1 slender brown ♀ (mature?) from tiny, small web under stone, under *Lantana* on shaded slope

Edaphembia
Metembia

C-210 lots of large egg mass and ^{some} early young Th-14-64.